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| EXAMINER | |
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| ELPENORD, CANDAL | |
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| 2416 | |

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/521,406 | RAJAHALME, JARNO | |
| | Examiner | Art Unit | |
| | CANDAL ELPENORD | 2416 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *05 November 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *18 January 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

### *Response to Arguments*

1. Applicant's arguments see Pre-Appeal Brief Conference filed November 05, 2008 with respect to the rejection(s) of claim(s) 1-21 under U.S.C. 103 (a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Jenq et al (US 7,039,005 B2).

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. **Claims 1-2, 11-12, 21** are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al (US 6,915,325 B1) in view of Jenq et al (US 7,039,005 B2).

**Regarding claim 1**, Lee '325 discloses a routing method for routing data packets (see, "tunneling of datagrams by the corresponding agent to the mobile node using the

care-of-address", col. 8, lines 66 to col. 7, lines 9) from a source terminal (fig. 1 to fig. 3, Corresponding host /agent (i.e. router) communicates with the mobile node, col. 3, lines 34-46) to a destination terminal (fig. 1 to fig. 3, , Mobile Node 10, col. 3, lines 34-46) via at least one communication network (fig. 1 to fig. 3, see IP mobility network, col. 3, lines 16-28) said at least one communication network (fig. 1 to fig. 3, see IP mobility network comprising of the Home domain 20 and foreign network 45, col. 3, lines 16-28) comprising at least one mobility agent entity (HA1, HA2, AR1, AR2, ERn, ERm) (fig. 1 to fig. 3, Home Agent 30 in the Home Domain network) for each of said terminals (fig. 1 to see, the Home agent 30, Border router 70 as the edge router, Corresponding Agent (i.e. router) 60, fig. 1 to fig. 3, Corresponding Host 50, and Mobile Node 10, col. 3, lines 16-47, col. 3, lines 34-52), the method comprising the steps of: establishing a route from the source via at least one first mobility agent associated to said source (see, "data messages from the corresponding host to the mobile node redirected to the appropriate care of address", col. 5, lines 24-50, see, "informing the corresponding host the care of address mobile node", col. 3, lines 54-62, see, tunnel set-up, col. 4, lines 56-65) and at least two consecutively arranged second mobility agents associated to said destination (fig. 1 to fig. 3, noted: the mobile station informing its home network of the care-of-address through a registration request 24-35, col. 4, lines 40-60-registration request address which is related to the care-of-address as to where the mobile station may be reached when it is away from its home network, see the Border router, corresponding agent router, the home agent router which are foreign and home agent domains respectively as the mobility agents) to said destination(fig. 1 to fig. 3, noted: the mobile

station informing its home network of the care-of-address through a registration request 24-35, col. 4, lines 40-60-registration request address which is related to the care-of-address as to where the mobile station may be reached when it is away from its home network, see the Border router, corresponding agent router, the home agent router which are foreign and home agent domains respectively as the mobility agents, col. 5, lines 39-50-see binding update message).

**Regarding claims 11, 21**, Lee '325 discloses a routing system (fig. 1, Foreign Domain and Home Domain Network, col. 3, lines 16-30) for routing data packets from a source terminal (fig. 1, Corresponding Host 50) to a destination terminal (fig. 1, Mobile Node 10) via at least one communication network (fig. 1, Foreign domain network 45), said at least one communication network (fig. 1, Foreign domain network 45) comprising at least one mobility agent entity (fig. 1, Border Router 70) for each of said terminals (fig. 1 to fig. 3, Corresponding Host 50, and Mobile Node 10, col. 3, lines 16-47), the system (fig. 1, Foreign Domain and Home Domain Network, col. 3, lines 16-30) comprising: route establishment means for establishing a route (see, "data messages from the corresponding host to the mobile node redirected to the appropriate care of address", col. 5, lines 24-50, see, "informing the corresponding host the care of address mobile node", col. 3, lines 54-62, see, tunnel optimization with respect to informing the corresponding host to the care of address of the mobile node, col. 3, lines 54-62 and, Noted: bypass/avoiding the home agent after establishing a tunnel, col. 4, lines 56-65), from the source (fig. 1, Corresponding Host 50), via at least one first mobility agent (fig. 1, Corresponding Agent 60) associated to said source (fig. 1, Corresponding Host 50)

and at least two consecutively arranged second mobility agents associated to said destination (fig. 1 to fig. 3, see Border Router 70 and Foreign Agent 40 (Router), col. 3, lines 16-30), to said destination (fig. 1 to fig. 3, Mobile Node 10).

Lee 325 discloses all the claimed limitations with the exception of being silent with respect to claimed features:

**Regarding claim 1**, deciding that said route is to be optimized and upon said decision, rerouting said route from one of said at least one first mobility agents directly to one of the at least two consecutively arranged second mobility agents such that at least one intermediate mobility agent said route is bypassed in the resulting rerouted route.

**Regarding claim 2**, wherein said decision is taken at one of said at least two second mobility agents associated to said destination.

**Regarding claims 11, 21**, decision means for deciding that said route is to be optimized, and, rerouting means for performing, in response to said decision, a rerouting of said route from one of said at least one first mobility agents directly to one of the at least two consecutively arranged second mobility agents such that at least one intermediate mobility agent in said route is bypassed in the resulting rerouted route.

However, Jenq '005 from the same field of endeavor discloses the above claimed features:

**Regarding claim 1**, deciding that said route is to be optimized and upon said decision (noted: established of a protected and routing the data over the newly established path upon failure or a fault in the working path as shown in fig. 2, see fault in the intermediate nodes (i.e. node 106, 106 to node 110 which are consecutively arranged), col. 3, lines 54-67), rerouting said route (noted: rerouting in the event of a fault in the working path, col. 3, lines 54-65, col. 7, lines 1-9) from one of said at least one first mobility agents (fig. 1 to fig. 4, see source node 104 (i.e. router or switch), col. 5, lines 9-24, lines 25-32, lines 42-45) directly to one of the at least two consecutively arranged second mobility agents (fig. 1 to fig. 4, see intermediate nodes (i.e. nodes 114, 116 and 118) of the protected path coupled to the sink node 112 which are consecutively arranged) such that at least one intermediate mobility agent said route is bypassed in the resulting rerouted route (noted: bypassing of the fault (i.e. old route) between the intermediate node 108 and node 110, col. 9, lines 18-28, col. 7, lines 1-9).

**Regarding claim 2**, wherein said decision (noted: established of a protected and routing the data over the newly established path upon failure or a fault in the working path as shown in fig. 2, see fault in the intermediate nodes (i.e. node 106, 106 to node 110 which are consecutively arranged), col. 3, lines 54-67) is taken at one of said at least two second mobility agents associated to said destination (noted: sending over the protected path (i.e. intermediate nodes 114, 116, 118) to the sink node in the event of t failure in the working path at intermediate node 110, col. 3, lines 54-67, col. 7, lines 1-9).

**Regarding claims 11, 21**, decision means for deciding that said route is to be optimized (noted: established of a protected and routing the data over the newly established path upon failure or a fault in the working path as shown in fig. 2, see fault in the intermediate nodes (i.e. node 106, 106 to node 110 which are consecutively arranged), col. 3, lines 54-67), and, rerouting means (noted: rerouting in the event of a fault in the working path, col. 3, lines 54-65, col. 7, lines 1-9) for performing, in response to said decision (noted: rerouting in the event of a fault in the working path and fault notification, col. 7, lines 1-9, col. 3, lines 54-65, col. 7, lines 1-9), a rerouting of said route (noted: rerouting in the event of a fault in the working path, col. 3, lines 54-65, col. 7, lines 1-9) from one of said at least one first mobility agents (fig. 1 to fig. 4, see source node 104 (i.e. router or switch), col. 5, lines 9-24, lines 25-32, lines 42-45) directly to one of the at least two consecutively arranged second mobility agents (fig. 1 to fig. 4, see intermediate nodes (i.e. nodes 114, 116 and 118) of the protected path coupled to the sink node 112 which are consecutively arranged) such that at least one intermediate mobility agent in said route is bypassed in the resulting rerouted route (noted: bypassing of the fault (i.e. old route) between the intermediate node 108 and node 110, col. 9, lines 18-28, col. 7, lines 1-9).

In view of the above, it would have been obvious to one of ordinary skilled in the art at the time the invention was made to modify the teaching features of Lee 325 by incorporating the alternative (.e. protection switching) in a communication network as taught by Jenq '005 in order to provide protection switching based resources and fault indication as suggested in col. 2, lines 27-34 for motivation. Additionally, the alternate

path routing features as taught by Jenq '005 can be substituted into the mobility teaching features of Lee to arrive at the claimed invention in order to provide efficient routing that would avoid the triangle routing in IP mobility.

5. **Claims 3-8 and 13-18** are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al (US 6,915,325 B1) in view of Jenq et al (US 7,039,005 B2) as applied to claim 1, 11 above and further view of Forslow et al (US 6973,057 B1).

Lee '325 and Jenq '005 disclose all the claimed limitations with the exception of being silent with respect to claimed features:

**Regarding claim 3**, a method, wherein the decision is based on an indication by the source or destination to optimize the route or to request for a specific quality of service for which route optimization is beneficial.

**Regarding claim 4**, a method wherein the decision is based on a service type of the traffic between the source and the destination.

**Regarding claim 5**, a method, wherein the decision to optimize the route is taken in case the service type indicates a service imposing delay Requirements.

**Regarding claim 6**, a method), wherein the service type indicates real-time traffic.

**Regarding claim 7**, a method wherein the decision is based on an estimated benefit from route optimization between the source and the terminal, and in case the estimated benefit exceeds a predetermined threshold value it is decided to reroute the route.

**Regarding claim 8**, a method, wherein the rerouting comprises the steps of informing one of the at least one first mobility agents of a current care_of_address of the destination.

However, Forslow '057 from the same field of endeavor discloses the above claimed features:

**Regarding claim 3**, Forslow '057 discloses a method ("mobile node data access", recited in abstract, lines 1-10), wherein the decision ("selective routing and optimal routing", recited in col. 5, lines 50-64) is based on an indication by the source (fig. 1, Mobile Node 14, recited in col. 7, lines 28-33) or destination (fig. 1, Mobile Node 14, recited in col. 7, lines 28-33) to optimize the route ("optimal routing based on particular quality of service", recited in col. 5, lines 50-64 and "bypassing of IP data packet routing mechanism", recited in col. 9, lines 34-41, "configure tunnel in accordance with a quality of service parameters", recited in col. 3, lines 58-64) or to request for a specific quality of for which route optimization is beneficial ("optimal routing based on particular quality of service", recited in col. 5, lines 50-64 and "bypassing of IP data packet routing mechanism", recited in col. 9, lines 34-41).

**Regarding claim 4**, a method ("mobile node data access", recited in abstract, lines 1-10) wherein the decision is based on a service type of the traffic ("quality /class of service to be taken into account in mobile IP/Internet communications", recited in col. 15, lines 52-61) between the source (fig. 1, Mobile Node 14, recited in col. 7, lines 28-33) and the destination (fig. 1, Corresponding Node 28, recited in col. 7, lines 58-65).

**Regarding claim 5**, a method ("mobile node data access", recited in abstract, lines 1-10), wherein the decision to optimize the route is taken in case the service type ("service level corresponding to the mobile user request", recited in col. 16, lines 3-14) indicates a service imposing delay Requirements ("requires low delay", recited in col. 15-16, lines 63-67 and lines 1-2).

**Regarding claim 6**, a method ("mobile node data access", recited in abstract, lines 1-10), wherein the service type ("traffic type", recited in col. 15, lines 63) indicates real-time traffic ("Voice –Over-IP", recited in col. 15, lines 59-67 and col. 16, lines 1-2).

**Regarding claim 7**, a method ("mobile node data access", recited in abstract, lines 1-10), wherein the decision ("selective routing and optimal routing", recited in col. 5, lines 50-64) is based on an estimated benefit from route optimization ("optimal routing based on particular quality of service", recited in col. 5, lines 50-64 and "bypassing of IP data packet routing mechanism", recited in col. 9, lines 34-41, "configure tunnel in accordance with a quality of service parameters", recited in col. 3, lines 58-64) between the source (fig. 1, Mobile Node 14, recited in col. 7, lines 28-33) and the terminal (fig. 1, Corresponding Node 28, recited in col. 7, lines 58-65), and in case the estimated benefit ("coloring to provide quality of service and defined of admin values with respect to bandwidth", recited in col. 16, lines 46-56) exceeds a predetermined threshold value ("high traffic that is more than one label-switched path", recited in col. 17, lines 4-9), it is decided to reroute ("bypassing of IP data packet routing mechanism", recited in col. 9, lines 34-41) the route ("load balancing between label-switched paths to avoid congestion and routes through secondary paths", recited in col. 17, lines 9-30).

**Regarding claim 8**, a method ("mobile node data access", recited in abstract, lines 1-10), wherein the rerouting comprises the steps of informing one of the at least one first mobility agents (fig. 1, Foreign Agent Router, recited in col. 8, lines 32-44) of a current care_of_address of the destination ("received care-of-address of mobile node, recited in col. 8, lines 32-59).

In view of the above, it would have been obvious to one of ordinary skilled in the art at the time the invention was made to modify the teaching features of Lee 325 with Jenq '005 and the method fro providing mobility management services as taught by Forslow '057, in order to provide routing efficiency and routing redundancy as suggested in col. 19, lines 41-57 for motivation.

Regarding claims 13-18, please see the Examiner comments with respect to claims 3-8 as discussed above.

6. **Claims 3-4,6, and 8-10, 13-14, 16, and 18-20** are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al (US 6,915,325 B1) in view of Jenq et al (US 7,039,005 B2) as applied to claims 1, 11 above and further view of Karagiannis et al (US 2002/0015395 A1).

Lee '325 and Jenq '005 disclose all the claimed limitations with the exception of being silent with respect to claimed features:

**Regarding claim 3**, a method, wherein the decision is based on an indication by the source or destination to optimize the route or to request for a specific quality of service for which route optimization is beneficial.

**Regarding claim 4**, a method, wherein the decision is based on a service type of the traffic between the source and the destination.

**Regarding claim 6**, a method, wherein the service type indicates real-time traffic.

**Regarding claim 8**, a method, wherein the rerouting comprises the steps of informing one of the at least one first mobility agents of a current care_of_address of the destination.

**Regarding claim 9**, a method, wherein the informing comprises the steps of sending a message from one of the consecutively arranged second mobility agents to one of the first mobility agents including the current care_of_address of the destination.

**Regarding claim 10**, a method, wherein the indication triggering the deciding for the route optimization is included in a source reservation signaling.

However, Karagiannis '395 from the same field of endeavor discloses the above claimed features:

**Regarding claim 3**, a method ("real-time packet session using RSVP", recited in abstract, lines 1-11), wherein the decision ("direct routing between the corresponding host and the mobile node after binding update message", recited in paragraph 0045, lines 1-12) is based on an indication by the source (fig. 3, Mobile Node 102, recited in paragraph 0040, lines 1-9) or destination (fig. 3, Corresponding Host 108, recited in paragraph 0040, lines 1-9) to optimize the route (fig. 6, route optimization, recited in paragraph 0067, lines 1-13) or to request (RSVP RESV 310 request, recited in paragraph) for a specific quality of service (path established upon QoS requirements,

recited in paragraph 0066, lines 1-11) for which route optimization is beneficial ("avoiding triangular routing", recited in paragraph 0066, lines 1-11).

**Regarding claim 4**, a method ("real-time packet session using RSVP", recited in abstract, lines 1-11), wherein the decision ("direct routing between the corresponding host and the mobile node after binding update message", recited in paragraph 0045, lines 1-12) is based on a service type of the traffic ("quality of service requirement", recited in paragraph, 0043, lines 1-12) between the source (fig. 3, Mobile Node 102, recited in paragraph 0040, lines 1-9) and the destination (fig. 3, Mobile Node 102, recited in paragraph 0040, lines 1-9).

**Regarding claim 6**, a method ("real-time packet session using RSVP", recited in abstract, lines 1-11) , wherein the service type ("quality of service requirement", recited in paragraph, 0043, lines 1-12) indicates real-time traffic ("real-time packet optimization routing", recited in paragraph 0067-0068).

**Regarding claim 8**, a method ("real-time packet session using RSVP", recited in abstract, lines 1-11), wherein the rerouting ("bypassing of the home agent of the mobile node", recited in paragraph 0063, lines 1-21) comprises the steps of informing one of the at least one first mobility agents ("sending binding update message to the corresponding host by the home agent", recited in paragraph 0063, lines 1-21) of a current care_of_address of the destination ("care-of- address of the mobile node, recited in paragraph 0063, lines 1-21).

**Regarding claim 9**, a method ("real-time packet session using RSVP", recited in abstract, lines 1-11), wherein the informing comprises the steps of sending a message

("binding update message sent by the Home Agent in response to binding request from the Foreign Agent", recited in paragraph 0029, lines 1-9) from one of the consecutively arranged second mobility agents (fig. 3, Home Agent 106) to one of the first mobility agents (fig. 3, Foreign Agent 104) including the current care_of_address of the destination ("care-of-address of the mobile node", recited in paragraph 0029, lines 1-9).

**Regarding claim 10**, a method ("real-time packet session using RSVP", recited in abstract, lines 1-11), wherein the indication ("receiving binding request", recited in paragraph 0028, lines 1-10) triggering the deciding for the route optimization ("route-optimization using binding request and update message, recited in paragraph 0029, lines 1-9) is included in a source reservation signaling ("path message and reservation request", recited in paragraph 0029, lines 1-9 and "RSVP message path", recited in paragraph 0042, lines 5-13 and "RRSVP RESV", recited in paragraph 0057).

In view of the above, it would have been obvious to one of ordinary skilled in the art at the time the invention was made to modify the teaching features of Lee 325 with Jenq '005 and the method and system for providing route optimization using RSVP as taught by Karagiannis '395 in order to provide routing efficiency with respect to real-time packet data optimization through RSVP as suggested in paragraph 0026, lines 2-20 for motivation.

Regarding claims 13-14, 16, and 18-20 please see the examiner comments with respect to claims 3-4,6, and 8-10 as discussed above.

***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Shaffer et al (US 6,236,642 B1) and Alriksson et al (US 6,97,7938 B2).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CANDAL ELPENORD whose telephone number is (571)270-3123. The examiner can normally be reached on Monday through Friday 7:30AM to 5:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kwang Bin Yao can be reached on (571) 272-3182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Candal Elpenord/

Examiner, Art Unit 2416

/Kwang B. Yao/

Supervisory Patent Examiner, Art Unit 2416